

CLAIMS

1. A piezoelectric actuator using a laminated piezoelectric device having alternately layered piezoelectric layers and electrode layers comprising:

5 a metal case provided on the outside of the side surface of the piezoelectric device, and

an insulating member provided between the piezoelectric device and the case; wherein

10 said insulating member being made of a piece separate from the piezoelectric device.

2. A piezoelectric actuator as set forth in claim 1, wherein the insulating member is a cylindrical resin or paper sleeve.

15 3. A piezoelectric actuator as set forth in claim 1, wherein the insulating member is a paper or resin sheet wound around the piezoelectric device.

4. A piezoelectric actuator as set forth in claim 3, wherein at least overlapped portions of the wound sheet are adhered to each other.

20 5. A piezoelectric actuator as set forth in claim 1, wherein the insulating member is adhered to the inner wall of the case.

25 6. A piezoelectric actuator as set forth in claim 1, wherein the piezoelectric device has a polygonal or barrel-shaped cross section perpendicular to its extending-and-contracting direction.

7. A piezoelectric actuator as set forth in claim 1, wherein the maximum thickness of the insulating member is no more than 0.3 mm.

30 8. A piezoelectric actuator as set forth in claim 1, wherein the piezoelectric actuator is incorporated in an injector and drives the injector.